



April 17, 2023

Transmitted via email to: jusc461@ECY.WA.GOV

Washington State Department of Ecology
Northwest Regional Office
15700 Dayton Avenue N
PO Box 330316
Shoreline WA 98133-9716

Attn: Ms. Julia Schwarz

**Re: First Quarter 2023 Progress Report
North Boeing Field/Georgetown Steam Plant (NBF/GTSP) Site
Agreed Order No. DE 5685
Landau Project No. 0025082.923.123**

Dear Ms. Schwarz:

As required by Section VII of the First Amendment to the above-referenced Agreed Order (Order), Landau Associates, Inc. (Landau) is providing this progress report to the Washington State Department of Ecology (Ecology) on behalf of The Boeing Company (Boeing) and the City of Seattle (City) in both electronic and hard copy formats. This report covers the first quarter (January, February, and March) of 2023 and includes the information required by the Order, and information required by Ecology’s November 9, 2016 letter re: Change in Progress Report Schedule and Content (Ecology 2016).

Meetings and Correspondence with Ecology

Significant meetings and correspondence with Ecology during First Quarter 2023 are summarized below:

Meeting/ Correspondence Date	Topic
January 18, 2023	A virtual meeting was held between Ecology, Boeing, the City, and King County International Airport (KCIA); discussion items included an update on responding to Ecology’s November 28, 2022 comments on the NBF/GTSP Remedial Investigation (RI) Revised Soil and Groundwater Screening Tables and Technical Memorandum, and a discussion of the public comment period for the City’s off-leash area and trail project.
January 20, 2023	The NBF/GTSP RI Revised Soil and Groundwater Screening Tables and Technical Memorandum, along with responses to comments received on November 28, 2022 were submitted to Ecology.
January 23, 2023	Ecology approved the revised version of the NBF/GTSP RI Soil and Groundwater Screening Tables and Technical Memorandum submitted on January 20, 2023.
February 3, 2023	The City submitted the Proposed Park Site Statistical Analysis to Demonstrate Compliance for Arsenic in Soil technical memorandum to Ecology.

Meeting/ Correspondence Date	Topic
February 9, 2023	Ecology provided comments on the Proposed Park Site Statistical Analysis to Demonstrate Compliance for Arsenic in Soil technical memorandum.
February 21–22, 2023	Landau provided an updated RI/feasibility study (FS) schedule to Ecology via email for Ecology’s review and Ecology provided comments via email the following day.
February 28, 2023	Landau provided a revised RI/FS schedule via email to Ecology to address Ecology comments.
March 14, 2023	The City provided an update to Ecology via email on the soil sampling chronology and status related to the City’s off-leash area and trail project.
March 31, 2023	Boeing notified Ecology of Boeing change in project coordinator from Joe Flaherty to Molly Taptich effective March 31, 2023 in accordance with Section VII.D of the Order.

RI Activities and Data Collected During First Quarter 2023

- During First Quarter 2023, Boeing and the City prepared revised NBF/GTSP RI soil and groundwater screening tables and a revised technical memorandum to address Ecology comments received on November 28, 2022; revised screening tables and the technical memorandum were submitted to Ecology on January 20, 2023.
- Landau worked with Ecology in First Quarter 2023 to respond to Ecology questions on the December 2022 Environmental Information Management (EIM) submittal to Ecology’s database, which included NBF/GTSP RI data collected from 2016 through 2022.
- Semiannual groundwater monitoring was completed at NBF in February 2023. Semiannual groundwater monitoring consists of collection of groundwater samples for laboratory analysis at selected wells in the 3-360 and 3-800 Areas; groundwater elevations are also measured in the 3-360 Area for preparation of elevation contours. Groundwater monitoring locations in the 3-360 and 3-800 Areas are shown on Figure 1. Groundwater data plots for select NBF wells are provided in Attachment 1.

Water levels were measured twice during the first quarter, in February and again in March. Depth to water measured on both dates is presented in Table 1. Following collection of the February 2023 water levels, review of depth to water (DTW) measurements and water levels identified a presumed erroneous measurement at NGW225. In comparison to water levels collected during 3Q22, the February 2023 DTW measurement at NGW225 was not consistent with a water level shift from dry season to wet season. Field personnel suspected the water level at NGW225 was not stabilized prior to collecting the February reading based on observations of fluctuating readings during DTW measurements. During the March 2023 measurements, all wells were opened, and readings were collected until water levels stabilized. The water level collected at NGW225 in March is consistent with nearby measurements and the delta between August 2022 and March 2023 is consistent with expected water level changes from a dry to wet season (Table 2). Groundwater contours for depth to water measured in March are shown on Figure 2. During future water level measurements in the 3-360 Area, field personnel will allow water levels to stabilize prior to collecting the final water level reading.

Offsite Investigation Activities Performed During First Quarter 2023

- None this period.

Data Packages for Which Data Validation Was Completed During First Quarter 2023

Data validation was completed on groundwater monitoring data for the package listed below:

- 23B0311.

Validated semiannual groundwater data is provided in Table 3. Electronic copies of the complete data packages are provided in Attachment 2.

Other Non-RI Work Performed During First Quarter 2023

- The final cleanup report documenting the independent action near the 3-322 Building to removed polychlorinated biphenyl-contaminated soil during drainage improvement projects has been prepared and was submitted to Ecology and the US Environmental Protection Agency on April 5, 2023.
- Seattle City Light (SCL), Seattle Parks and Recreation (SPR), and Seattle Department of Transportation (SDOT; collectively “the City”) are teaming to develop an off-leash pet area and bicycle/pedestrian trail in the Georgetown and South Park communities (Proposed Park Site). The City is receiving and evaluating laboratory analytical results from supplemental soil samples collected during an Ecology-approved field effort conducted in December 2022. These data will be used to refine the planned excavation depths at the Proposed Park Site. The City submitted a technical memorandum regarding arsenic compliance in the Proposed Park Site soils on February 3, 2023. Ecology provided comments on the technical memorandum on February 9, 2023.

Deviations from Approved Work Plan

- None this period.

Proposed Schedule Revisions and Issues That Have Potential to Impact the Project Schedule or Objectives

- Investigation of PFAS has the potential to delay finalization of the RI Report and delay beginning of the FS.

Anticipated Second Quarter 2023 Activities

- Soil vapor screening tables will be submitted to Ecology concurrent with this quarterly report.
- Preparation of the Draft RI Report (the next/forthcoming version of the RI document) will continue in Second Quarter 2023. The Draft RI Report is scheduled to be submitted to Ecology in Third Quarter 2023.

- The potentially liable parties will continue to work with Ecology on next steps for responding to Ecology's September 15, 2022 letter re: PFAS.

If you have any questions regarding this progress report or other topics, please contact Molly Taptich (206-883-7494), Allison Crowley (206-684-3167), or Colette Gaona (503-542-1083).

LANDAU ASSOCIATES, INC.



Colette M. Gaona
Project Manager

CMG/ljl

[\\EDMDATA01\PROJECTS\025\082\915 RI-FS\M\PROGRESS REPORTS - QUARTERLY\2023\1Q23\BOEING_NBF-GTSP_LANDAU_1Q23_PROG RPT.DOCX]

cc: Molly Taptich, The Boeing Company
Joseph Flaherty, The Boeing Company
Allison Crowley, City of Seattle
Peter Dumaliang, King County

Attachments

Figure 1. NBF/GTSP RI Groundwater Monitoring Well Locations, February 2022
Figure 2. NBF/GTSP RI 3-360 Area Groundwater Elevation Contours, March 8, 2023
Table 1. March 2023 3-360 Area Groundwater Elevations
Table 2. 3-360 Area Quarterly Water Level Monitoring
Table 3. Semiannual Groundwater Monitoring Data
Attachment 1. Semiannual Groundwater Data Plots
Attachment 2. Laboratory Data Packages

References

Ecology. 2016. Letter: Change in Progress Report Schedule and Content, North Boeing Field/Georgetown Steam Plant Agreed Order No. DE 5685. From Mark Adams, Cleanup Project Manager, Toxics Cleanup Program, Washington State Department of Ecology, to Carl Bach, The Boeing Company, Allison Crowley, Seattle City Light, and Peter Dumaliang, King County International Airport. November 9.



Legend

- Groundwater Monitoring Well
- * Groundwater Monitoring Well (Decommissioned)
- ▭ Site Boundary
- ▭ City of Seattle Proposed Off-Leash Pet Area and Bicycle/Pedestrian Trail
- ▭ NGW104 Semiannual Groundwater Monitoring Well
- ▭ Quarterly Groundwater Elevation Monitoring Locations

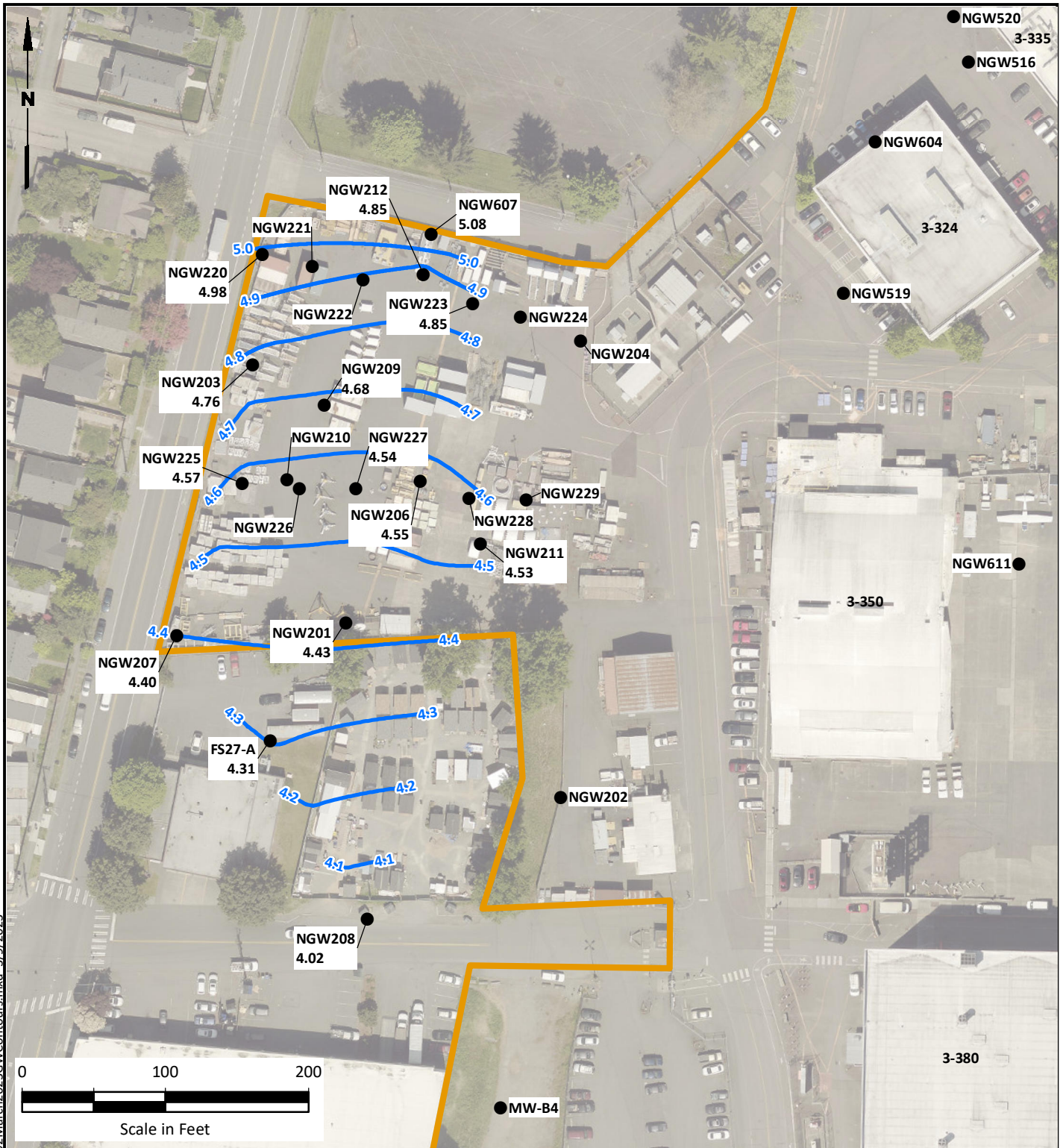
Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: King County GIS.

NBF/GTSP RI Seattle, Washington	NBF/GTSP RI Groundwater Monitoring Well Locations, February 2022	Figure 1
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LANDAU ASSOCIATES



G:\Projects\1025\1082\192\1123\1023\F02\March2023\GWContours.mxd 3/9/2023

Legend

● Groundwater Monitoring Well

▭ Site Boundary

NGW201 Well ID

3.30 Groundwater Elevation (ft)

Notes

1. Groundwater elevations in NGVD29 datum, ft, measured on March 8, 2023.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Google Earth Pro.



NBF/GTSP RI
Seattle, Washington

**NBF/GTSP RI 3-360 Area
Groundwater Elevation Contours,
March 8, 2023**

Figure

2

Table 1
March 2023 3-360 Area Groundwater Elevations
NBF/GTSP Remedial Investigation
Seattle, Washington

Location Name	Date		2/14/2023		3/8/2023	
	TOC Elevation (ft) (a)		DTW (ft)	GW Elevation (ft)	DTW (ft)	GW Elevation (ft)
FS27-A	13.94		9.91	4.03	9.63	4.31
NGW201	12.57		8.20	4.37	8.14	4.43
NGW203	13.56		8.84	4.72	8.80	4.76
NGW206	12.28		7.78	4.50	7.73	4.55
NGW207	12.80		8.42	4.38	8.40	4.40
NGW208	10.83		6.84	3.99	6.81	4.02
NGW209	13.3		8.72	4.58	8.62	4.68
NGW211	10.84		6.44	4.40	6.31	4.53
NGW212	12.52		7.71	4.81	7.67	4.85
NGW220	13.32		8.34	4.98	8.34	4.98
NGW223	11.73		6.94	4.79	6.88	4.85
NGW225	12.26		8.97	3.29	7.69	4.57
NGW227	12.61		8.29	4.32	8.07	4.54
NGW607	12.67		7.60	5.07	7.59	5.08

Abbreviations and Acronyms:

DTW = depth to water

ft = feet

NM = not measured

TOC = top of casing

Notes:

(a) Vertical Datum: NGVD29, US feet.

To convert NGVD29 elevations to NAV88 elevations add 3.59 feet.

Table 2
3-360 Area Quarterly Water Level Monitoring
NBF/GTSP Remedial Investigation
Seattle, Washington

	NGW203		NGW220		NGW223		NGW225		NGW607	
TOC Elevation (a, b)	13.56		13.32		11.73		12.26		12.67	
	DTW (ft)	Elevation (ft)	DTW (ft)	Elevation (ft)	DTW (ft)	Elevation (ft)	DTW (ft)	Elevation (ft)	DTW (ft)	Elevation (ft)
3/4/2020	8.79	4.77	8.30	5.02	6.95	4.78	7.47	4.79	7.64	5.03
8/11/2020	10.00	3.56	9.53	3.79	8.06	3.67	9.55	2.71	8.80	3.87
11/9/2020	10.06	3.50	9.63	3.69	8.17	3.56	9.03	3.23	9.04	3.63
3/24/2021	8.64	4.92	8.14	5.18	6.75	4.98	7.55	4.71	7.24	5.43
6/23/2021	9.68	3.88	9.27	4.05	7.91	3.82	7.55	4.71	5.86	6.81
8/17/2021	10.01	3.55	9.53	3.79	8.06	3.67	8.83	3.43	8.92	3.75
12/6/2021	8.93	4.63	8.44	4.88	7.04	4.69	7.81	4.45	7.79	4.88
2/16/2022	8.79	4.77	8.18	5.14	6.87	4.86	7.29	4.97	7.41	5.26
6/17/2022	9.03	4.53	8.56	4.76	7.14	4.59	7.92	4.34	7.51	5.16
8/8/2022	9.62	3.94	9.14	4.18	7.70	4.03	8.60	3.66	8.53	4.14
3/8/2023	8.80	4.76	8.34	4.98	6.88	4.85	7.69	4.57	7.59	5.08
Delta (c)	0.82		0.80		0.82		0.91		0.94	

Abbreviations and Acronyms:

DTW = depth to water

ft = feet

TOC = top of casing

Notes:

(a) Vertical Datum: NGVD29, US feet.

(b) To convert NGVD29 elevations to NAV88 elevations add 3.59 feet.

(c) Delta is presented as the difference in feet between the two most recent quarters of water level measurements.

Table 3
Semiannual Groundwater Monitoring Data
NBF/GTSP Remedial Investigation
Seattle, Washington

Analyte	Area, Sample Location, Sample Date, Sample Type, Laboratory SDG															
	3-360 Building Area											3-800 Building Area				
	FS27-A 2/14/2023 N 23B0311	NGW201 2/14/2023 N 23B0311	NGW203 2/14/2023 N 23B0311	NGW206 2/14/2023 N 23B0311	NGW207 2/14/2023 N 23B0311	NGW208 2/14/2023 N 23B0311	NGW211 2/14/2023 N 23B0311	NGW212 2/14/2023 N 23B0311	NGW220 2/14/2023 N 23B0311	NGW607 2/14/2023 N 23B0311	NGW607 2/14/2023 FD 23B0311	NGW301 2/14/2023 N 23B0311	NGW307 2/14/2023 N 23B0311	NGW308 2/14/2023 N 23B0311	NGW309 2/14/2023 N 23B0311	
VOCs (µg/L; SW-846 8260D)																
cis-1,2-Dichloroethene	6.02	2.48	22.3	0.49	0.22	4.81	0.61	3.28	15.6	2.16	2.16	0.40	0.32	0.20 U	0.20 U	
Tetrachloroethene	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	3.11	0.22	0.80	0.20 U	
Trichloroethene	2.59	0.20 U	1.26	0.21	0.83	0.33	0.20 U	0.56	1.51	1.22	1.23	0.46	0.20 U	0.20 U	0.20 U	
Vinyl Chloride	0.20 U	15.4	8.55	2.07	0.20 U	0.84	0.82	8.16	3.64	0.80	0.92	0.20 U	0.61	0.20 U	0.23	
General Chemistry (mg/L; SM 5310B)																
Total Organic Carbon	5.05	340.6	1171	137.1	990.7	5.15	272.1	720.0	775.6	2522	2503	3.29	164.4	(a)	13.82	

Notes:

a) Due to laboratory error, the sample collected from NGW308 was not able to be analyzed for total organic carbon.

Bold text indicates detected analyte.

U = The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

Abbreviations and Acronyms:

µg/L = micrograms per liter

FD = field duplicate

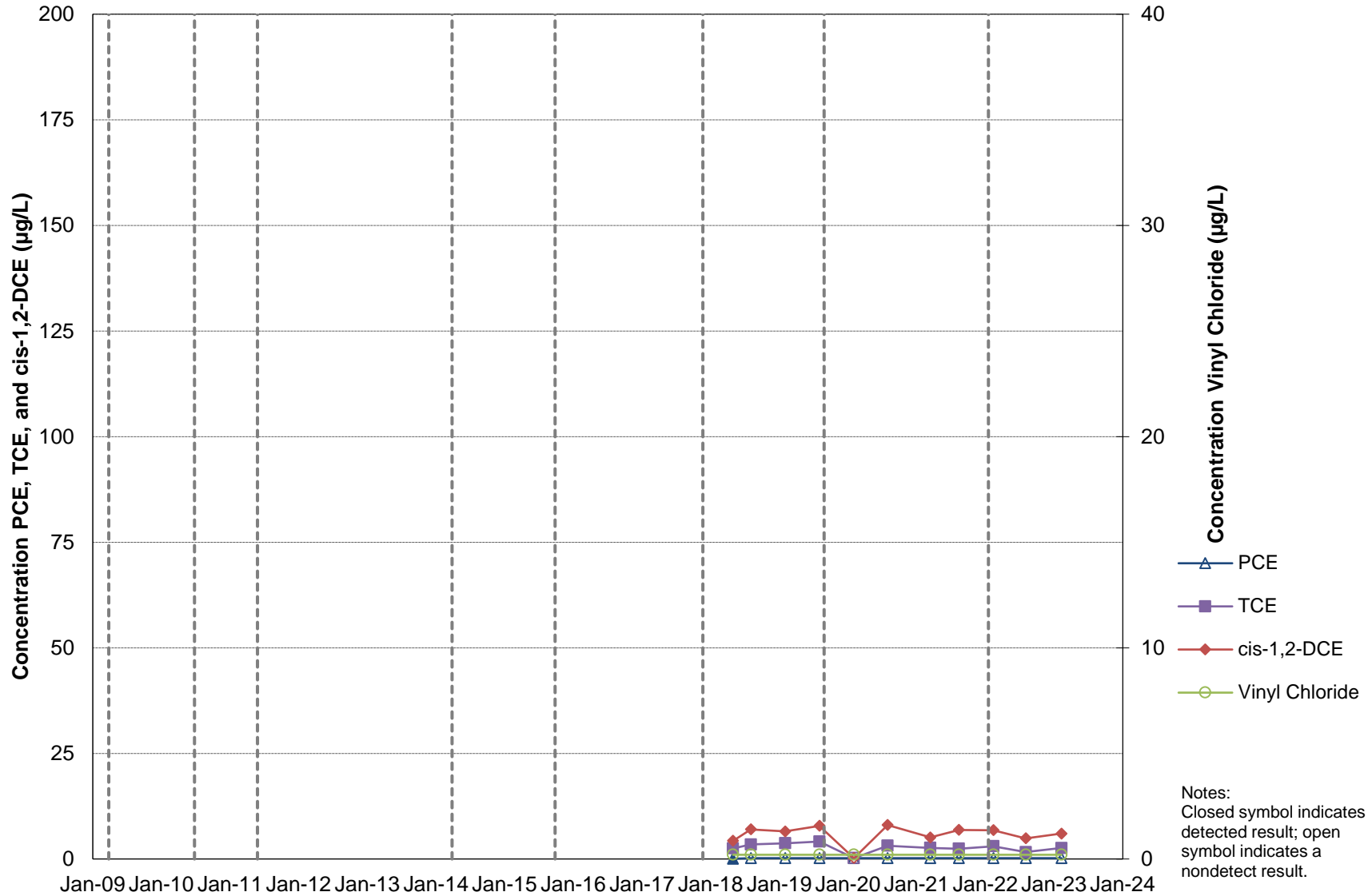
mg/L = milligrams per liter

N = primary sample

SDG = sample delivery group

VOCs = volatile organic compounds

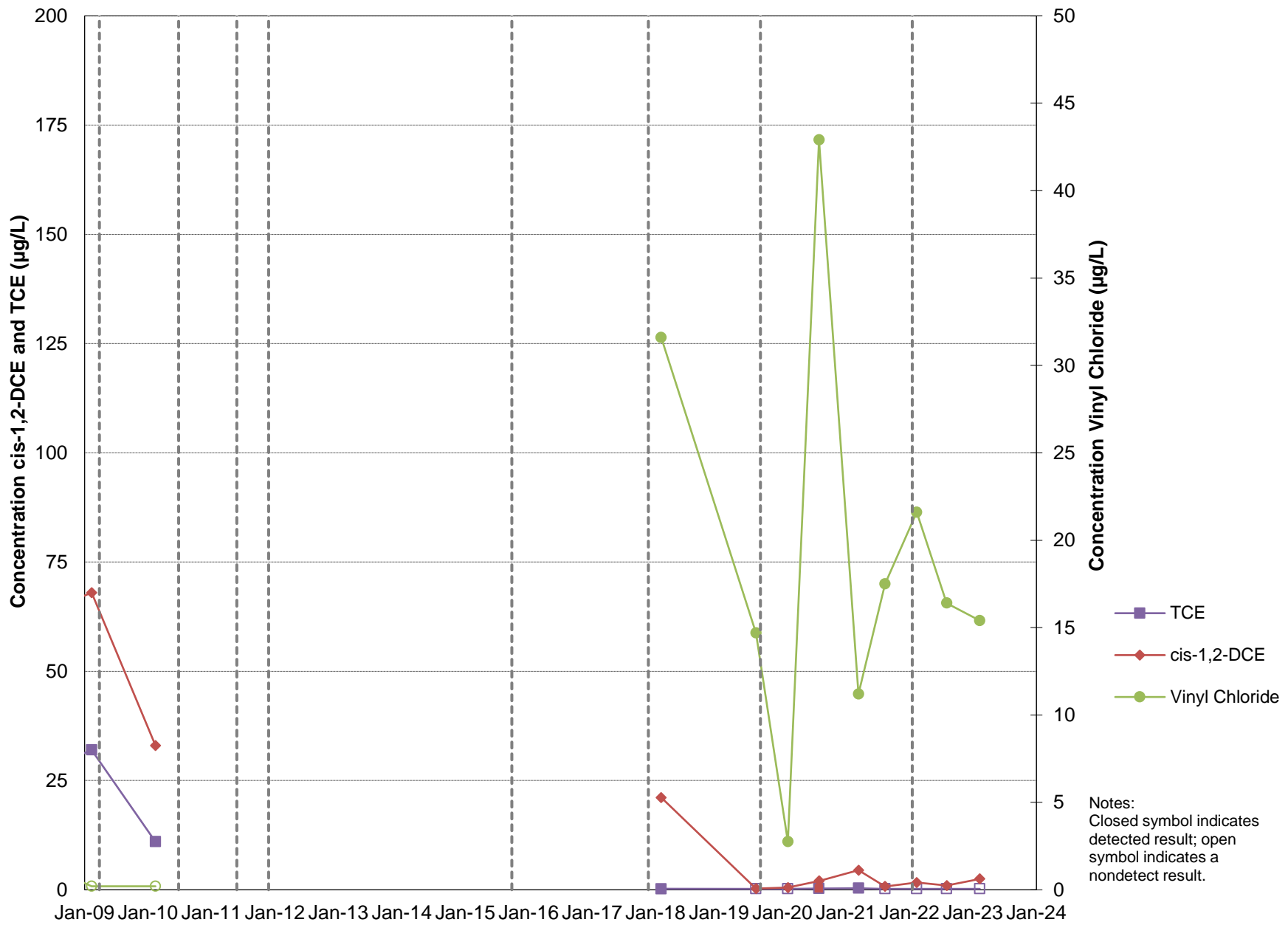
Semiannual Groundwater Data Plots



North Boeing Field
 Seattle, Washington

Area 3-360 FS27A Time Series

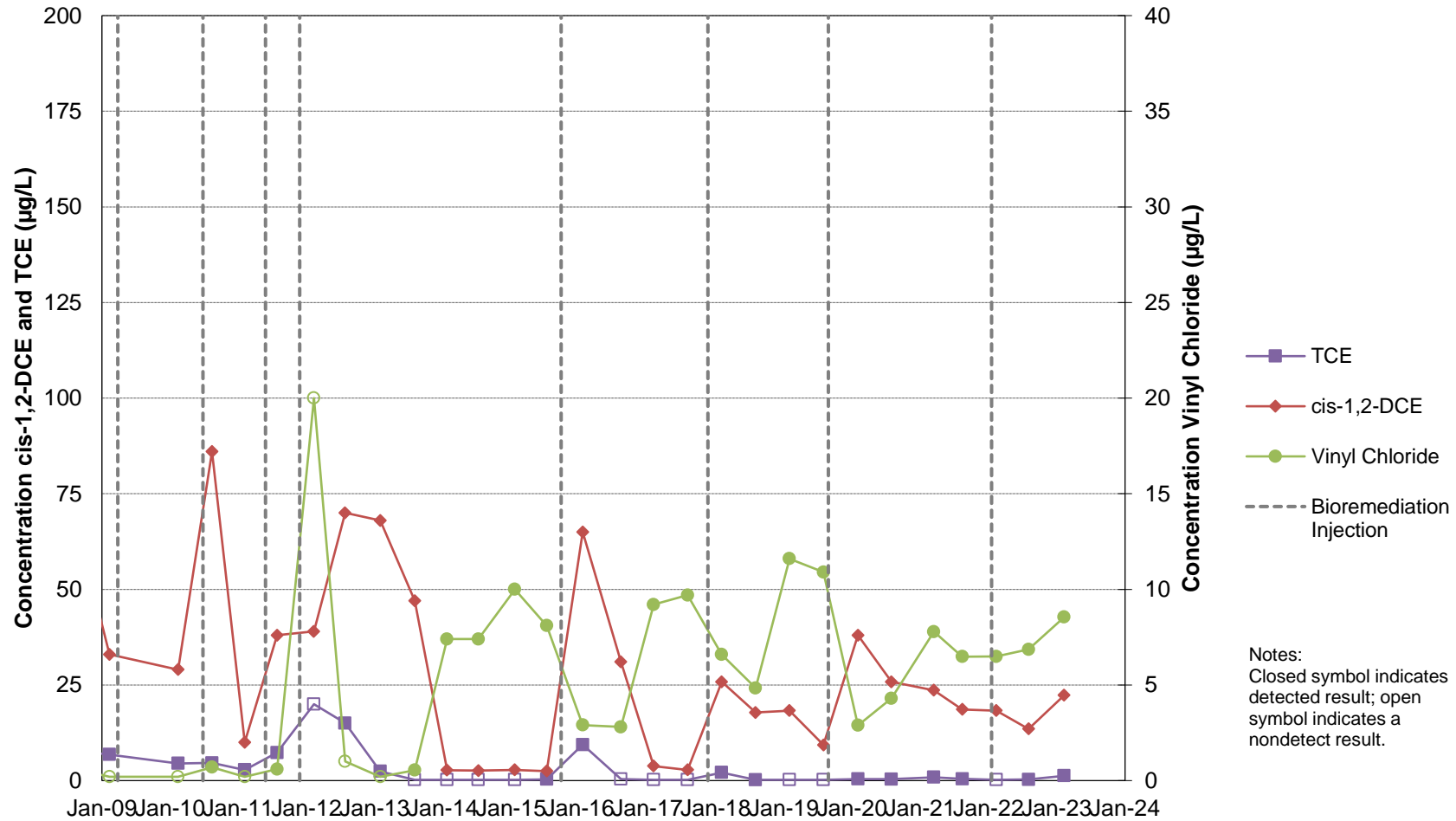
Figure
1-1

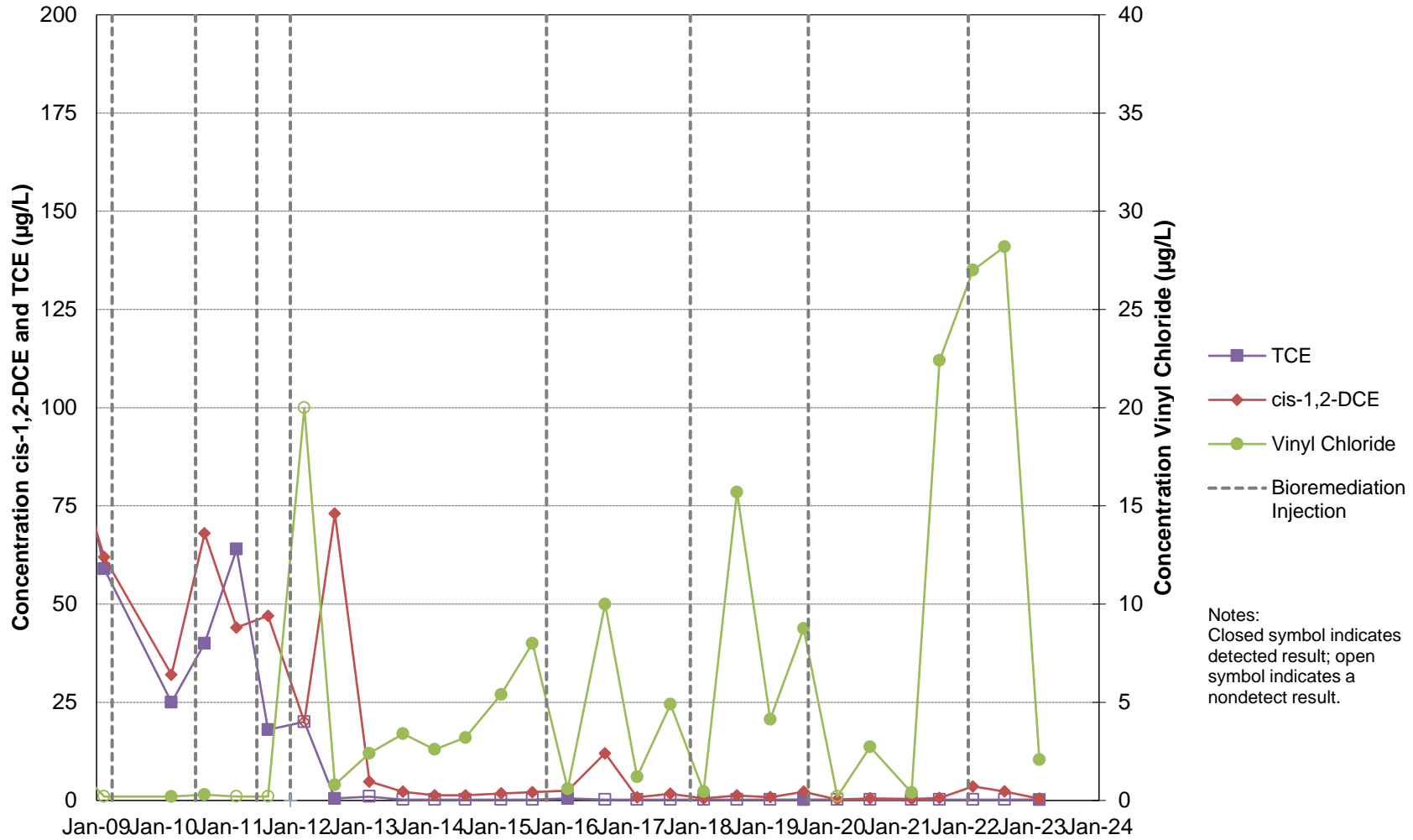


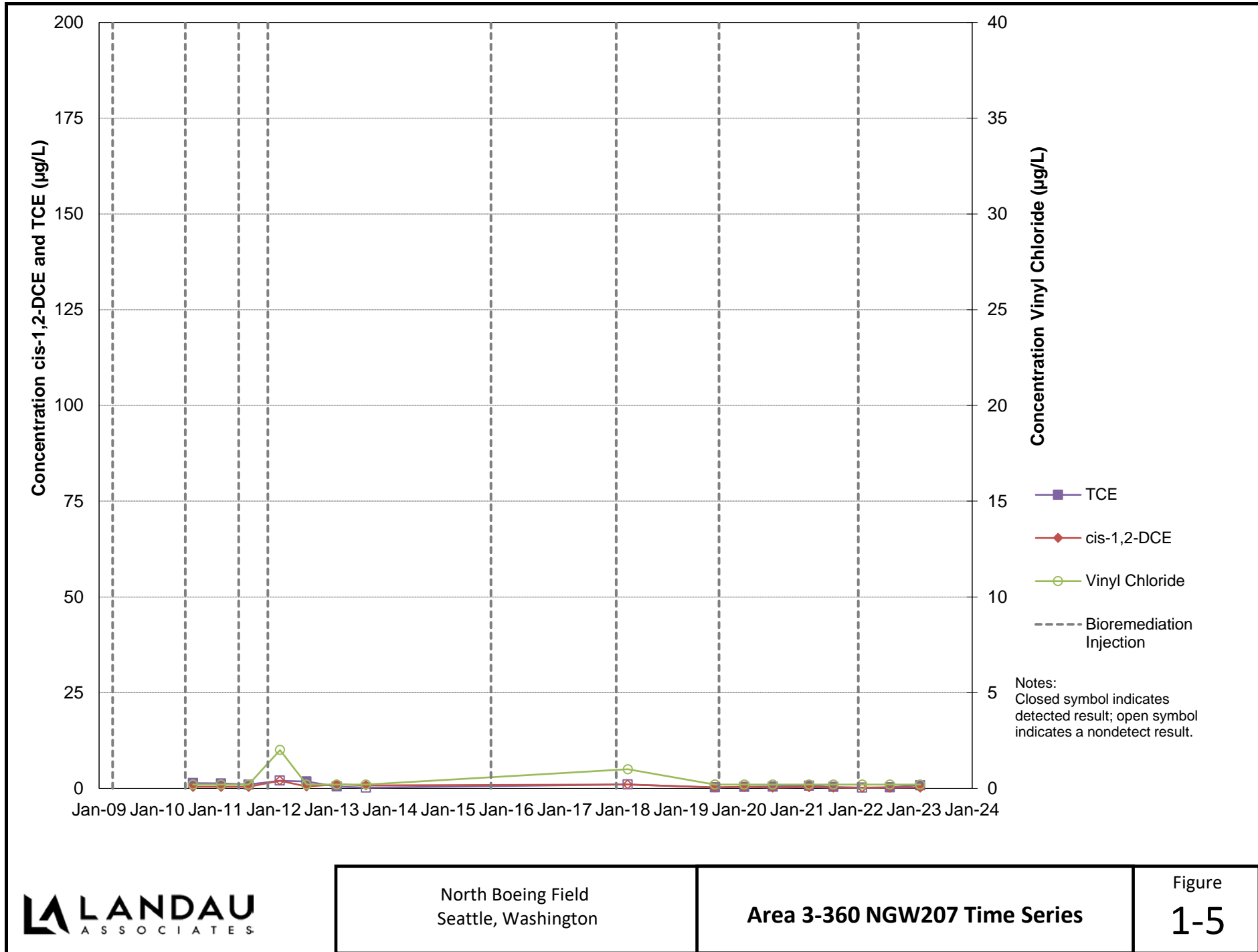
North Boeing Field
 Seattle, Washington

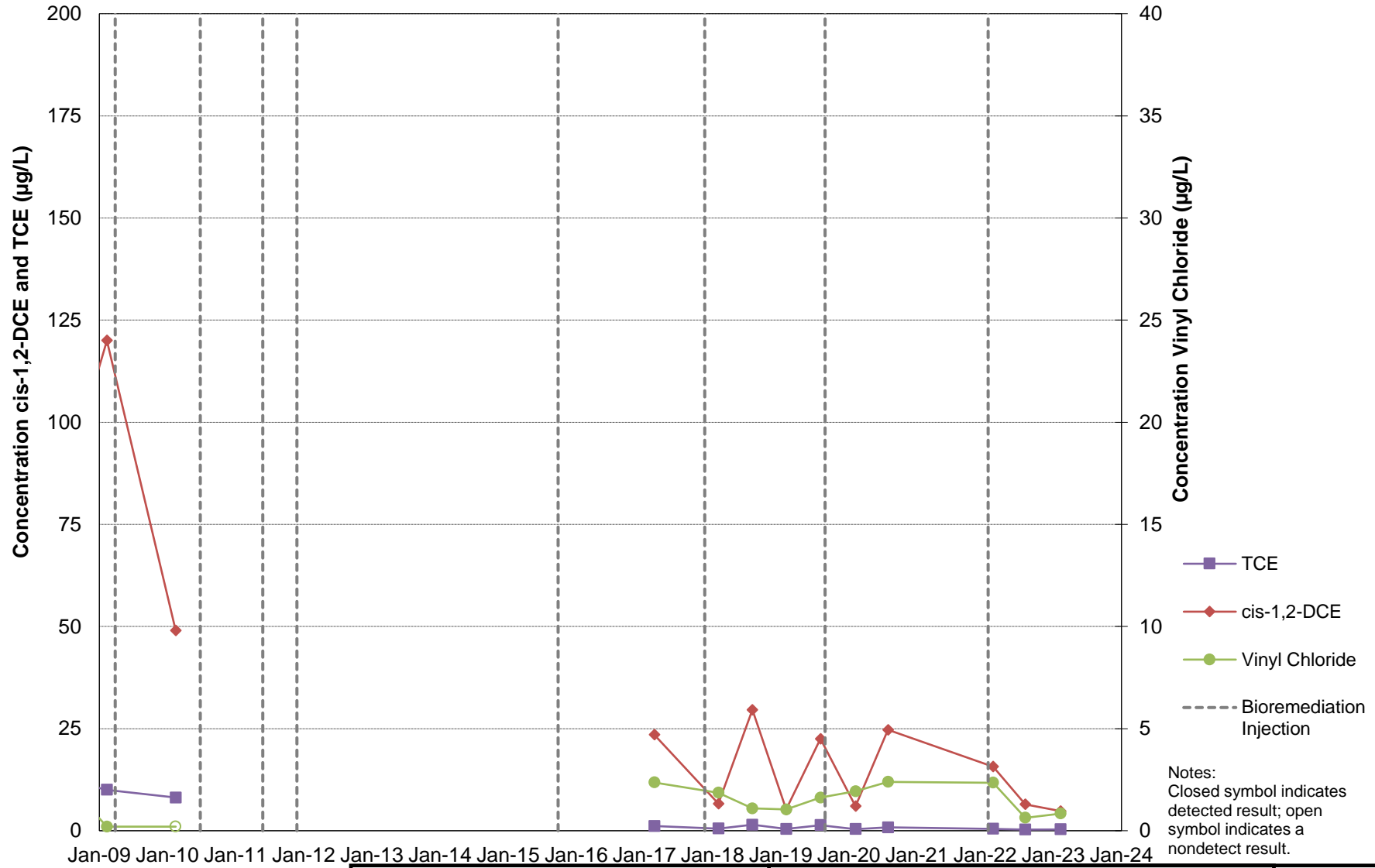
Area 3-360 NGW201 Time Series

Figure
 1-2





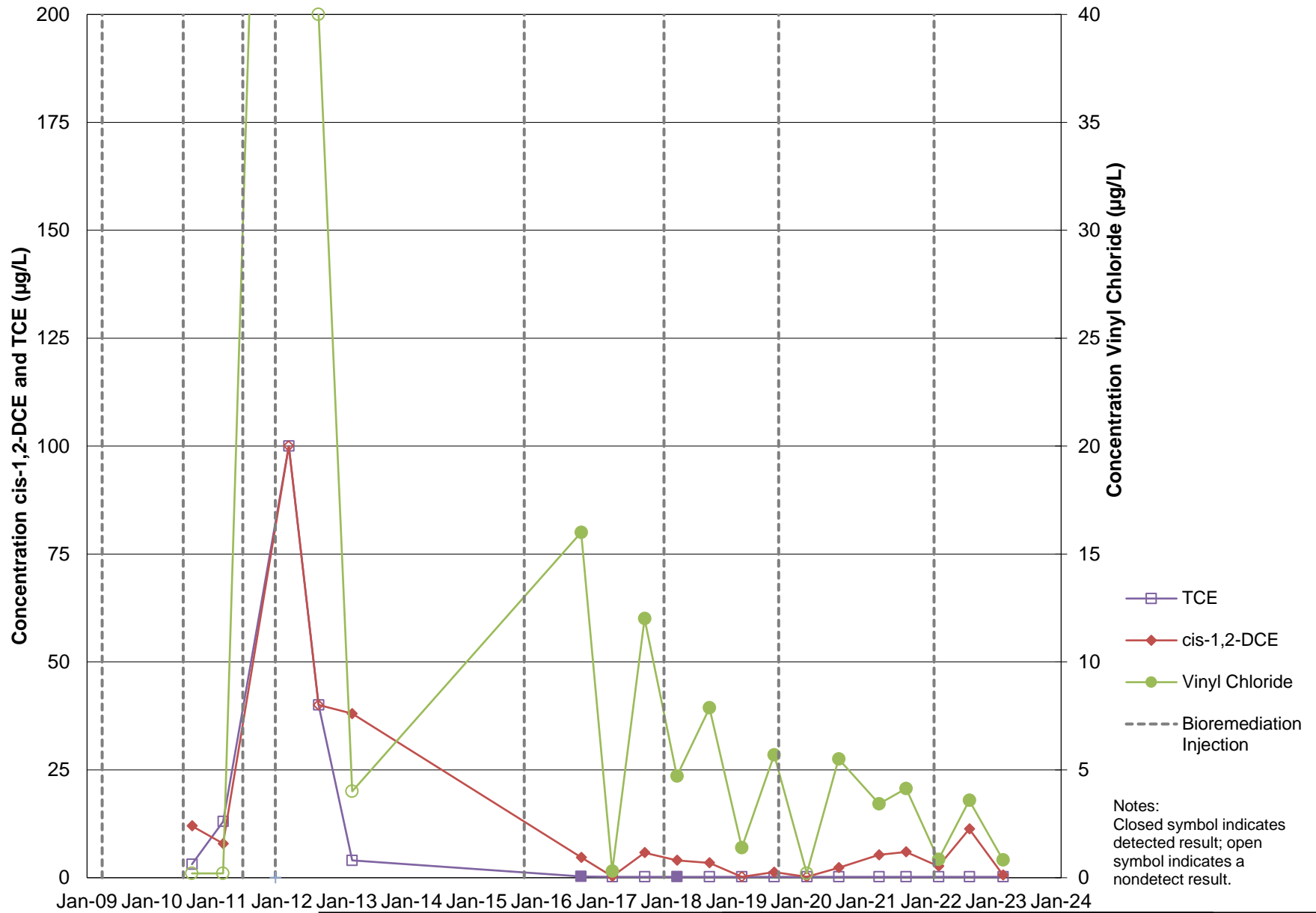




North Boeing Field
Seattle, Washington

Area 3-360 NGW208 Time Series

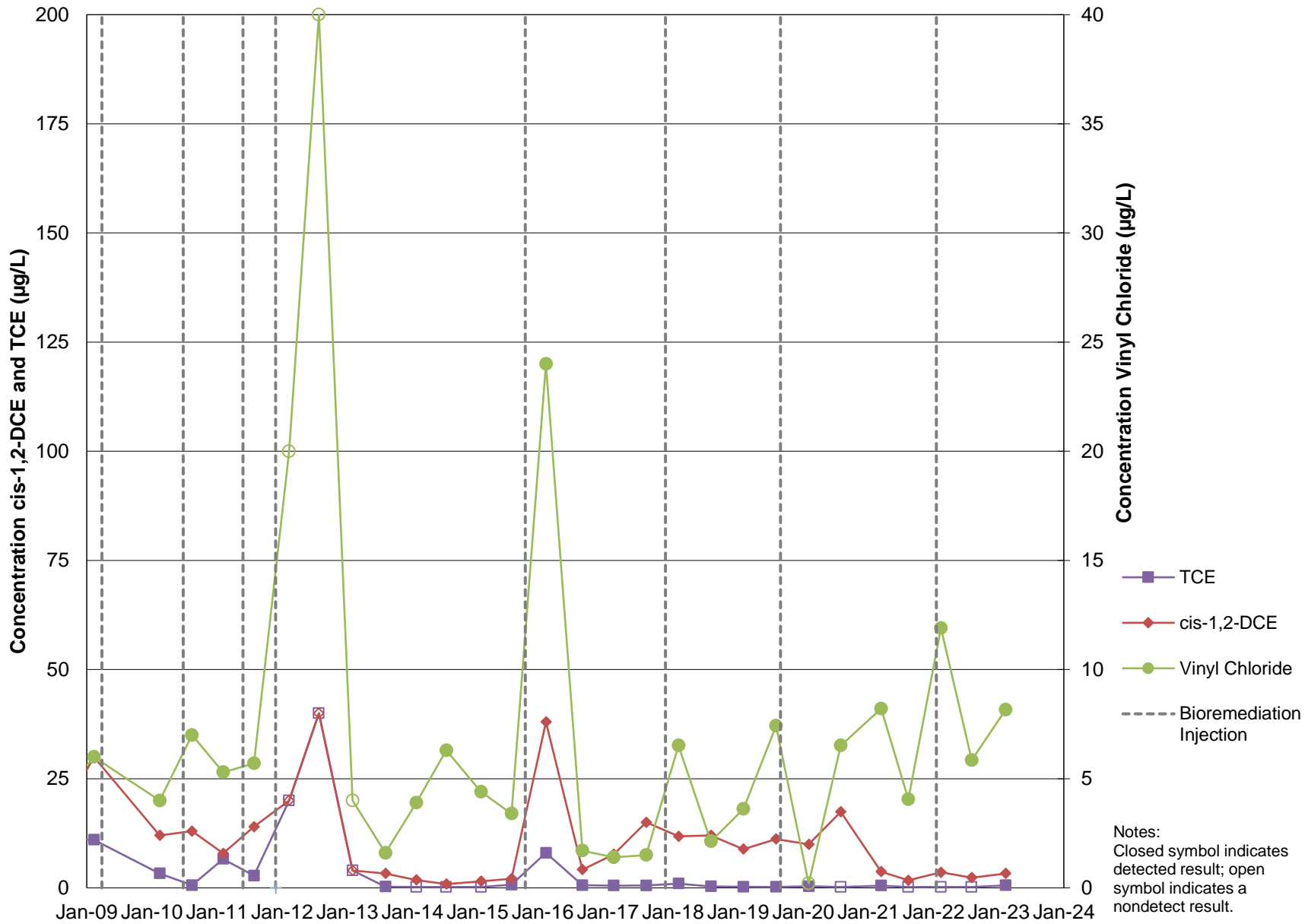
Figure
1-6



North Boeing Field
Seattle, Washington

Area 3-360 NGW211 Time Series

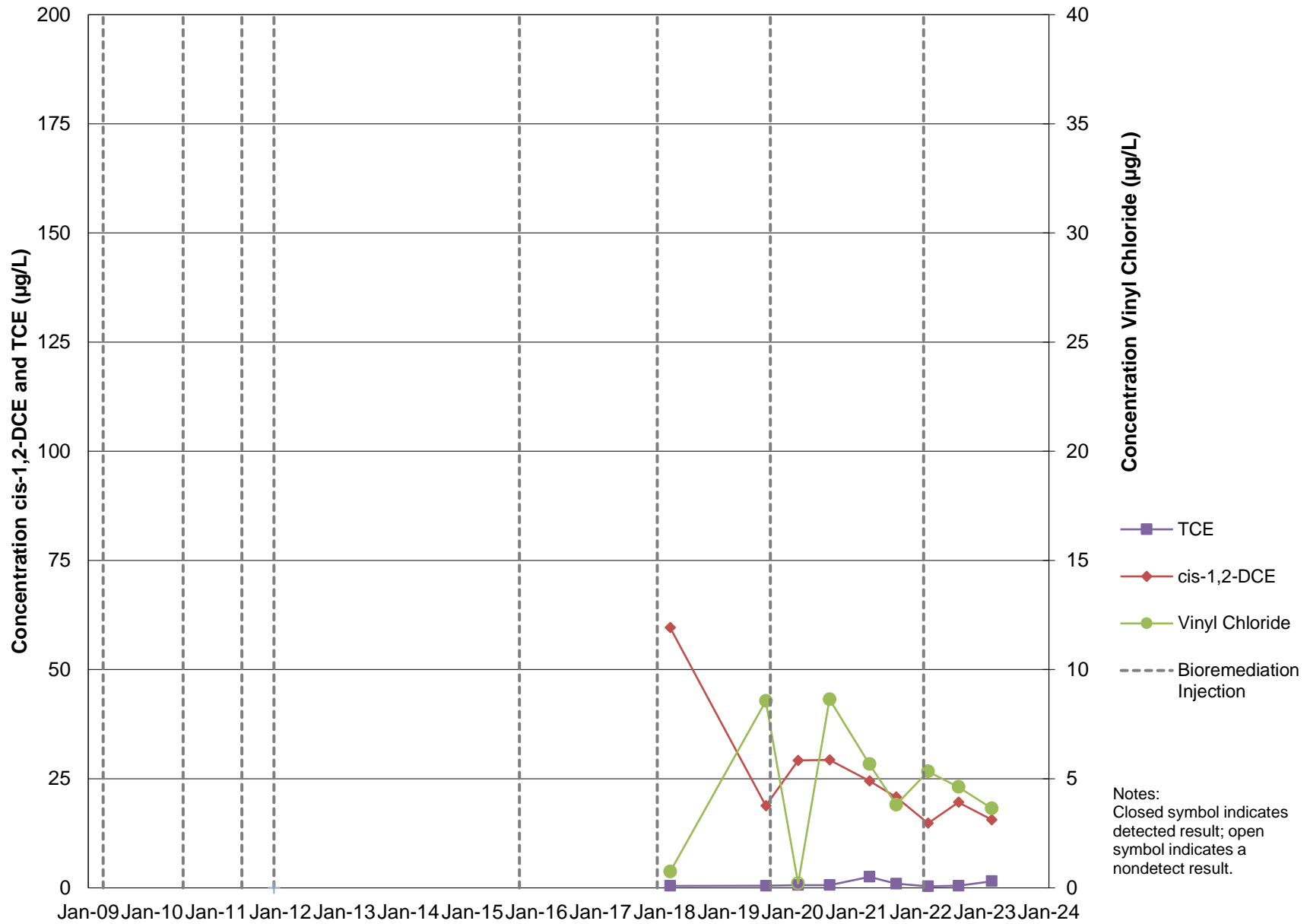
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1-7

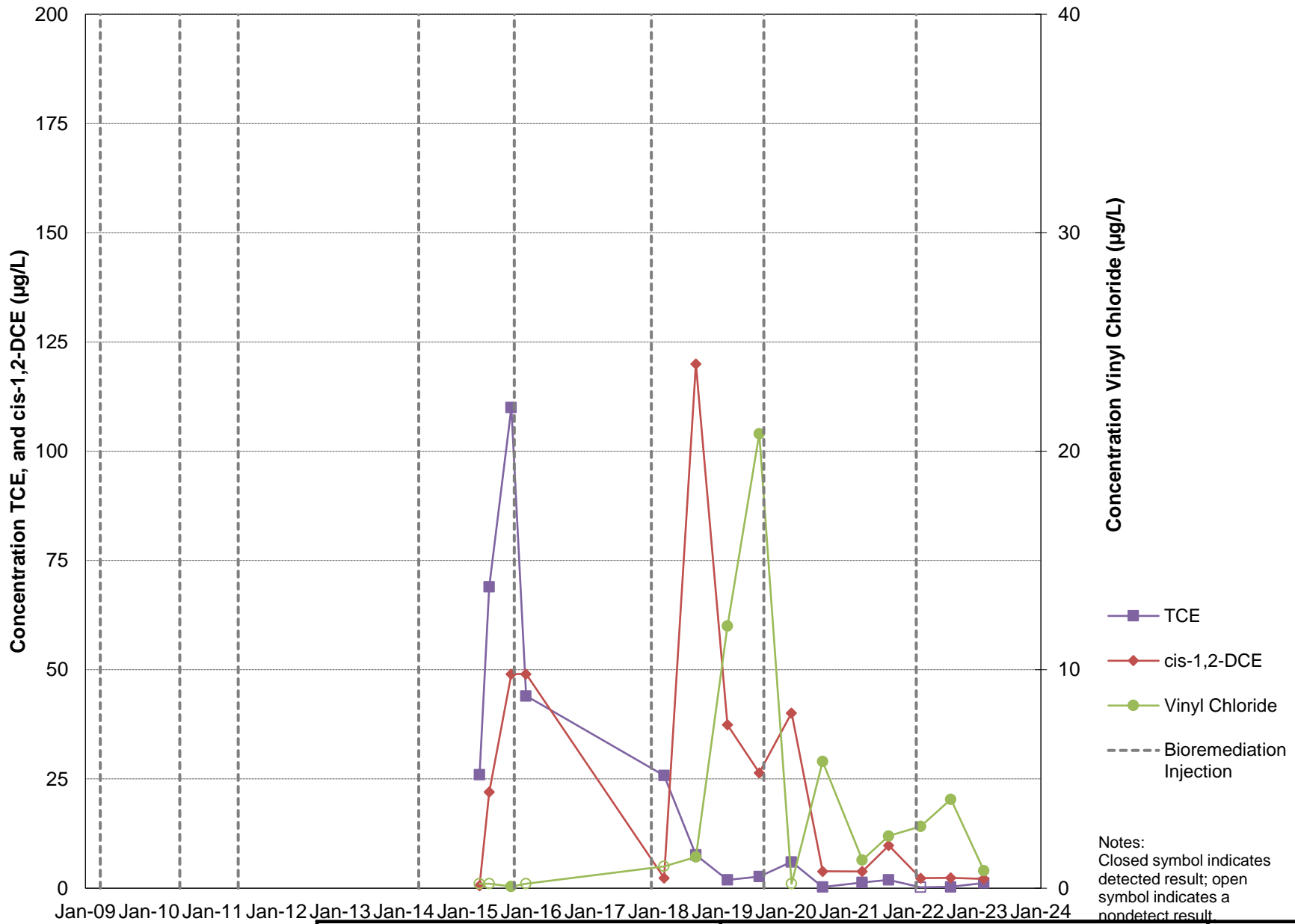


North Boeing Field
Seattle, Washington

Area 3-360 NGW212 Time Series

Figure
1-8

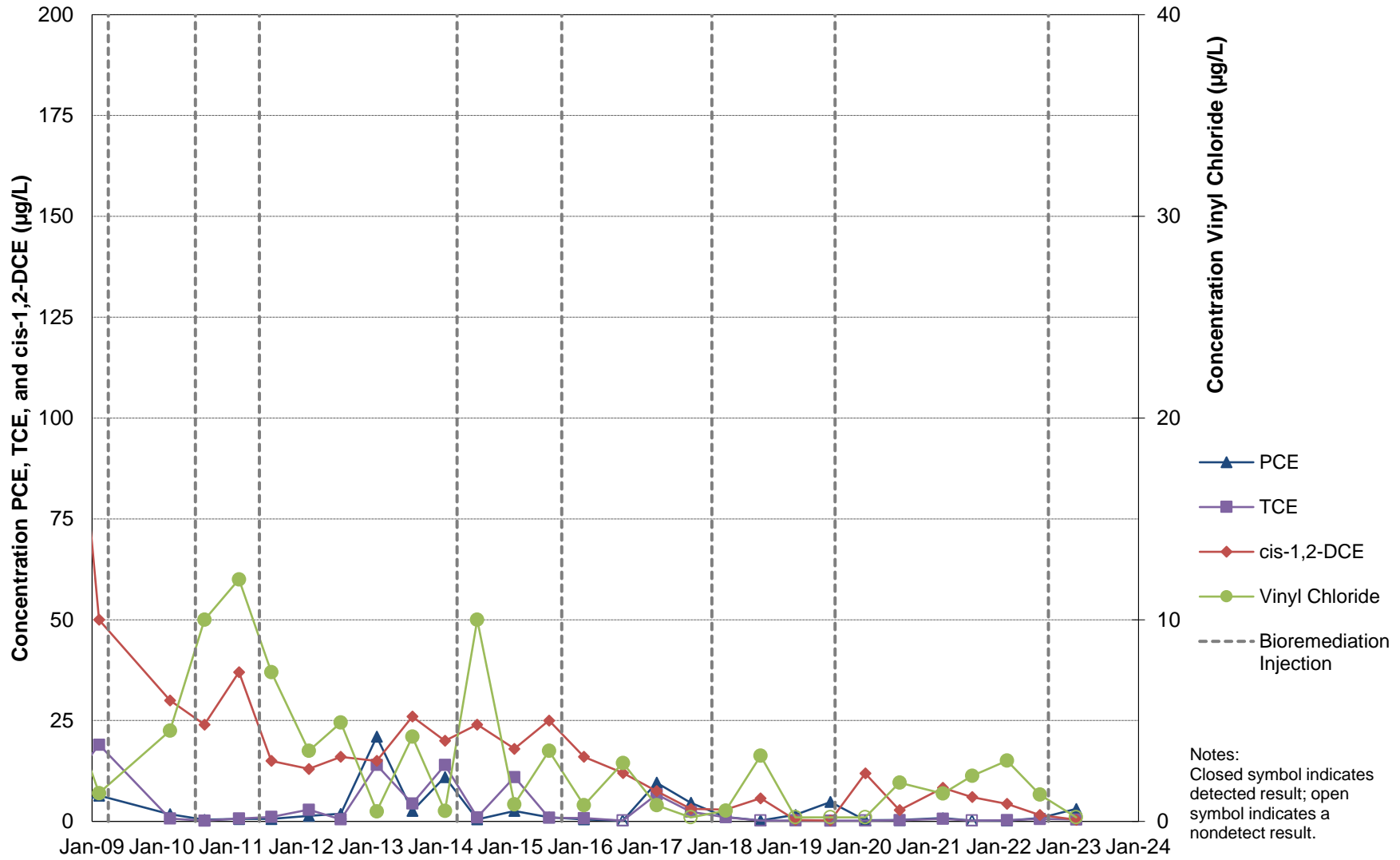




North Boeing Field
Seattle, Washington

Area 3-360 NGW607 Time Series

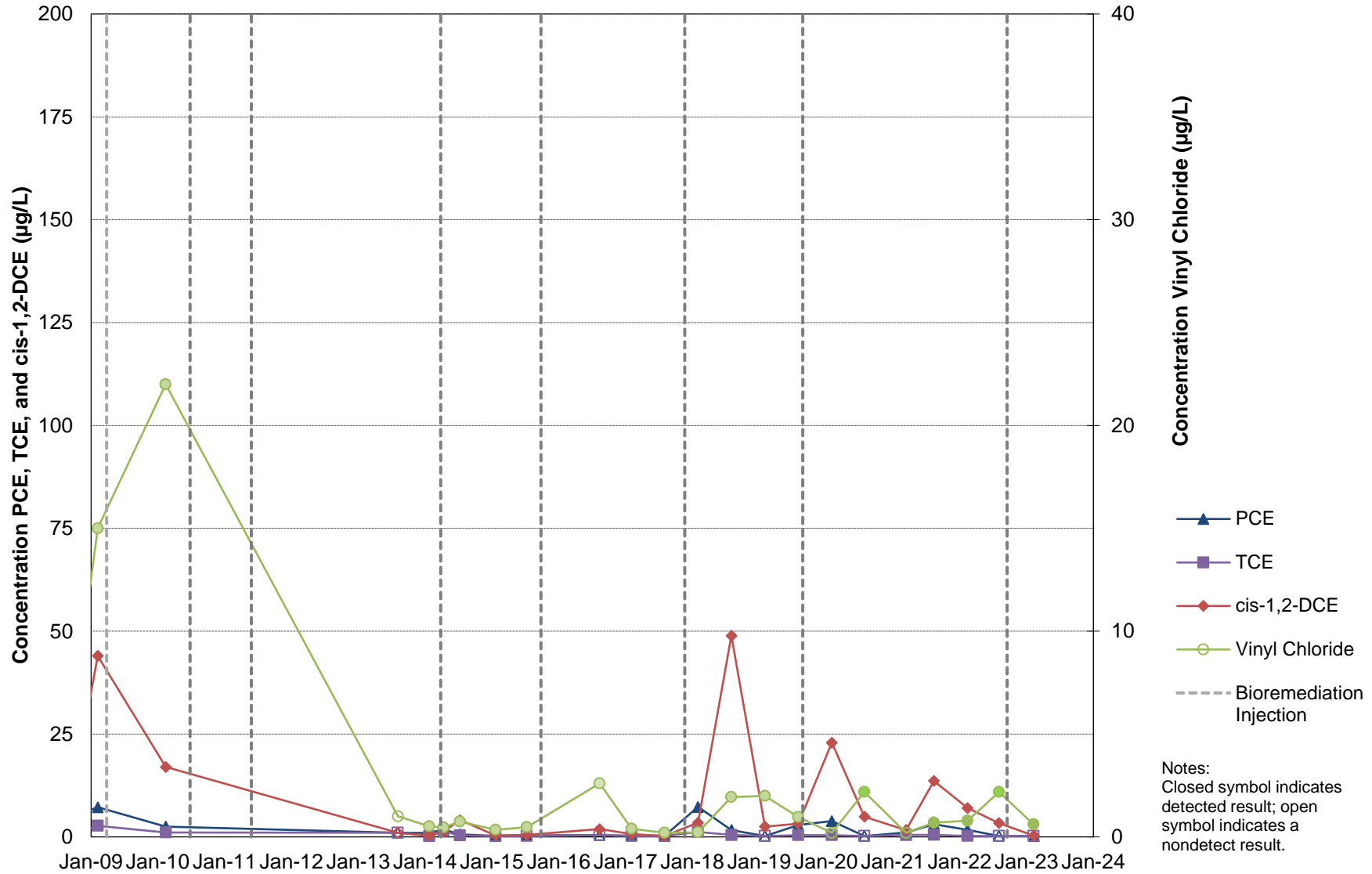
Figure
1-10



North Boeing Field
Seattle, Washington

Area 3-800 NGW301 Time Series

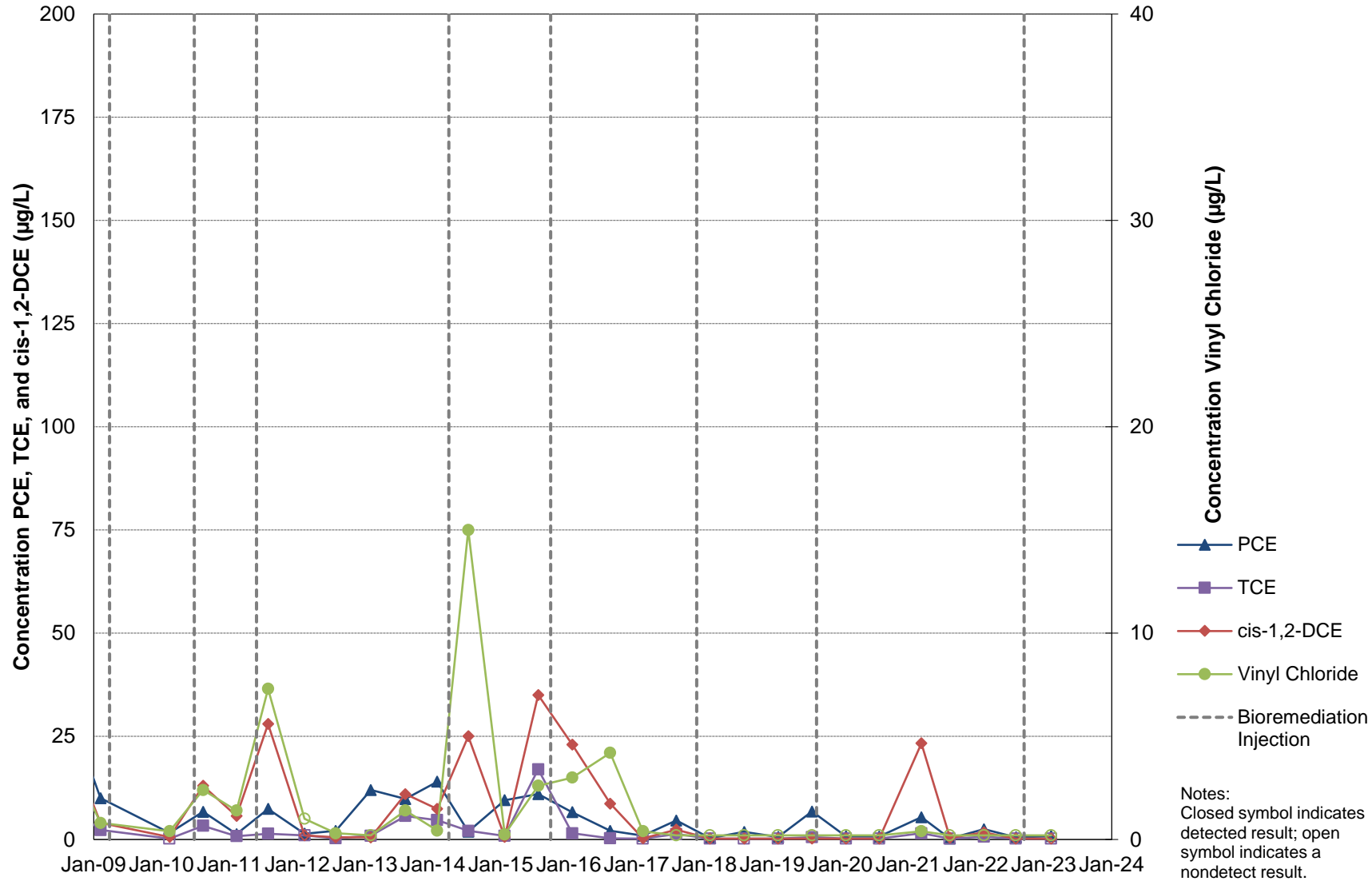
Figure
1-11



North Boeing Field
Seattle, Washington

Area 3-800 NGW307 Time Series

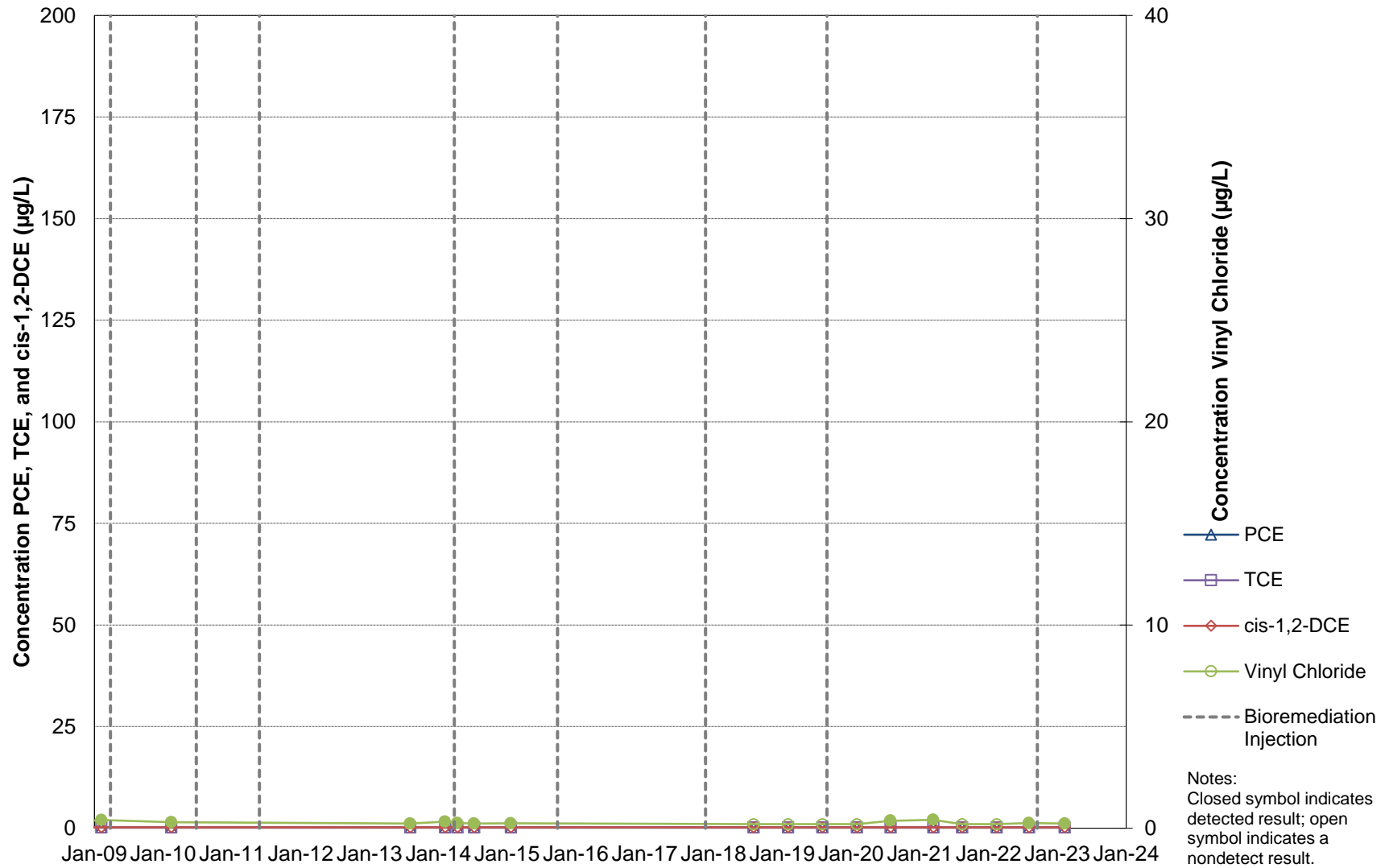
Figure
1-12



North Boeing Field
Seattle, Washington

Area 3-800 NGW308 Time Series

Figure
1-13



North Boeing Field
Seattle, Washington

Area 3-800 NGW309 Time Series

Figure
1-14

Laboratory Data Packages



Analytical Resources, LLC
Analytical Chemists and Consultants

15 March 2023

Jennifer Parsons
The Boeing Company [North Boeing Field]
PO Box 3703 MS 2R-96
Seattle, WA 98124

RE: NBF Regional GW Program (025217.003.099.079)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
23B0311

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain-of-Custody Record

<input checked="" type="checkbox"/> North Seattle (206) 631-8660	<input type="checkbox"/> Spokane (509) 327-9737	Date <u>2/14/2023</u>	Turnaround Time: <u>Standard</u>
<input type="checkbox"/> Tacoma (253) 926-2493	<input type="checkbox"/> Portland (503) 542-1080	Page <u>1</u> of <u>1</u>	Accelerated _____
<input type="checkbox"/> Olympia (360) 791-3178			

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters										Observations/Comments				
					VOCS (2600) *	TOL (SM5310C) **	MS/MSD												
DUP-021423	2/14/2023	948	AQ	4	X	X													
FS27-A-021423		1054		4	X	X													
NGW212-021423		1154		4	X	X													
NGW607-021423		1238		4	X	X													
NGW211-021423		1241		4	X	X													
NGW220-021423		1338		4	X	X													
NGW208-021423		1339		4	X	X													
NGW203-021423		1419		4	X	X													
NGW208-021423		1444		4	X	X													
NGW201-021423		1455		4	X	X													
NGW206-021423		1534		4	X	X													
NGW308-021423		1559		4	X	X													
NGW309-021423		1658		4	X	X													
NGW307-021423		1701		4	X	X													
NGW301-021423		1741		12	X	X													
Tap Blank-021423		-		2	X														

Special Handling Requirements: _____

Shipment Method: Dropoff

Stored on ice: Yes / No

Other _____

* PCE, TCE, cis-1,2-DCE, VC only

** DL = 1.0 mg/L

Relinquished by
 Signature [Signature]
 Printed Name Benjamin Hecker
 Company LAI
 Date 2/14/2023 Time 1928

Received by
 Signature [Signature]
 Printed Name Trent Smith
 Company AR2 LLC
 Date 2/15/23 Time 8:02

Relinquished by
 Signature _____
 Printed Name _____
 Company _____
 Date _____ Time _____

Received by
 Signature _____
 Printed Name _____
 Company _____
 Date _____ Time _____



The Boeing Company [North Boeing Field]
PO Box 3703 MS 2R-96
Seattle WA, 98124

Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DUP-021423	23B0311-01	Water	14-Feb-2023 09:48	15-Feb-2023 08:02
FS27-A-021423	23B0311-02	Water	14-Feb-2023 10:54	15-Feb-2023 08:02
NGW212-021423	23B0311-03	Water	14-Feb-2023 11:54	15-Feb-2023 08:02
NGW607-021423	23B0311-04	Water	14-Feb-2023 12:38	15-Feb-2023 08:02
NGW211-021423	23B0311-05	Water	14-Feb-2023 12:41	15-Feb-2023 08:02
NGW220-021423	23B0311-06	Water	14-Feb-2023 13:38	15-Feb-2023 08:02
NGW208-021423	23B0311-07	Water	14-Feb-2023 13:39	15-Feb-2023 08:02
NGW203-021423	23B0311-08	Water	14-Feb-2023 14:19	15-Feb-2023 08:02
NGW207-021423	23B0311-09	Water	14-Feb-2023 14:44	15-Feb-2023 08:02
NGW201-021423	23B0311-10	Water	14-Feb-2023 14:55	15-Feb-2023 08:02
NGW206-021423	23B0311-11	Water	14-Feb-2023 15:34	15-Feb-2023 08:02
NGW308-021423	23B0311-12	Water	14-Feb-2023 15:59	15-Feb-2023 08:02
NGW309-021423	23B0311-13	Water	14-Feb-2023 16:58	15-Feb-2023 08:02
NGW307-021423	23B0311-14	Water	14-Feb-2023 17:01	15-Feb-2023 08:02
NGW301-021423	23B0311-15	Water	14-Feb-2023 17:41	15-Feb-2023 08:02
Trip Blank-021423	23B0311-16	Water	14-Feb-2023 09:48	15-Feb-2023 08:02



The Boeing Company [North Boeing Field]
PO Box 3703 MS 2R-96
Seattle WA, 98124

Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

Work Order Case Narrative

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) contained TOC. Associated samples that contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.



WORK ORDER

23B0311

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: The Boeing Company [North Boeing Field]

Project Manager: Kelly Bottem

Project: NBF Regional GW Program

Project Number: 025217.003.099.079

Preservation Confirmation

Container ID	Container Type	pH
23B0311-01 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-01 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-01 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-01 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-02 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-02 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-02 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-02 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-03 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-03 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-03 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-03 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-04 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-04 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-04 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-04 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-05 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-05 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-05 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-05 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-06 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-06 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-06 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-06 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-07 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-07 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-07 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-07 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-08 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-08 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-08 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-08 D	Glass NM, Amber, 250 mL, 9N H2SO4	6.2 P
23B0311-09 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-09 B	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

23B0311

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: The Boeing Company [North Boeing Field]

Project Manager: Kelly Bottem

Project: NBF Regional GW Program

Project Number: 025217.003.099.079

23B0311-09 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-09 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-10 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-10 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-10 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-10 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-11 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-11 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-11 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-11 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-12 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-12 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-12 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-12 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-13 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-13 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-13 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-13 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-14 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-14 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-14 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-14 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-15 A	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 B	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 C	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 D	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 E	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 F	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 G	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 H	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 I	VOA Vial, Clear, 40 mL, HCL	
23B0311-15 J	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-15 K	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P
23B0311-15 L	Glass NM, Amber, 250 mL, 9N H2SO4	L2 P

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02115123



Cooler Receipt Form

ARI Client: Boeing Regional GW
 COC No(s): _____ (NA)
 Assigned ARI Job No: 23B0311

Project Name: 925217.003-999.079
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: Night drop
 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO
 Were custody papers included with the cooler? YES NO
 Were custody papers properly filled out (ink, signed, etc.) YES NO
 Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 8:00 1:0 _____
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: T009708

Cooler Accepted by: [Signature] Date: 02115/23 Time: 8:02

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
 What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
 Was sufficient ice used (if appropriate)? NA YES NO
 How were bottles sealed in plastic bags? Individually Grouped Not
 Did all bottles arrive in good condition (unbroken)? YES NO
 Were all bottle labels complete and legible? YES NO
 Did the number of containers listed on COC match with the number of containers received? YES NO
 Did all bottle labels and tags agree with custody papers? YES NO
 Were all bottles used correct for the requested analyses? YES NO
 Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO
 Were all VOC vials free of air bubbles? NA YES NO
 Was sufficient amount of sample sent in each bottle? J.S. YES NO
 Date VOC Trip Blank was made at ARI NA 02110123
 Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: [Signature] Date: 02118/23 Time: 8:25 Labels checked by: JCS

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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DUP-021423
23B0311-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 09:48
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 11:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-01 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	0.92	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	2.16	ug/L	
Trichloroethene	79-01-6	1	0.20	1.23	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	95.4	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	100	%	



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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DUP-021423
23B0311-01RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 09:48
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 18:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-01RE1 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		40	20.00	20.00	2503	mg/L	B, D



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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FS27-A-021423
23B0311-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 10:54
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 11:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-02 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	6.02	ug/L	
Trichloroethene	79-01-6	1	0.20	2.59	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	98.6	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.6	%	



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FS27-A-021423
23B0311-02 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 10:54
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 07:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-02 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	5.05	mg/L	B



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NGW212-021423
23B0311-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 11:54
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 12:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-03 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	8.16	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	3.28	ug/L	
Trichloroethene	79-01-6	1	0.20	0.56	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.7	%	



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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NGW212-021423
23B0311-03RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 11:54
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 18:58

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-03RE1 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		10	5.00	5.00	720.0	mg/L	B, D



The Boeing Company [North Boeing Field]
PO Box 3703 MS 2R-96
Seattle WA, 98124

Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

NGW607-021423
23B0311-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 02/14/2023 12:38

Instrument: NT2 Analyst: LH

Analyzed: 02/15/2023 12:33

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 23B0311-04 A

Preparation Batch: BLB0376

Sample Size: 10 mL

Prepared: 02/15/2023

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	0.80	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	2.16	ug/L	
Trichloroethene	79-01-6	1	0.20	1.22	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.8</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>103</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>99.0</i>	<i>%</i>	



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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NGW607-021423
23B0311-04RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 12:38
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 19:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-04RE1 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		40	20.00	20.00	2522	mg/L	B, D



The Boeing Company [North Boeing Field]
PO Box 3703 MS 2R-96
Seattle WA, 98124

Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

NGW211-021423
23B0311-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 02/14/2023 12:41

Instrument: NT2 Analyst: LH

Analyzed: 02/15/2023 12:53

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 23B0311-05 A

Preparation Batch: BLB0376

Sample Size: 10 mL

Prepared: 02/15/2023

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	0.82	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.61	ug/L	
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>100</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>100</i>	<i>%</i>	



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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NGW211-021423
23B0311-05RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 12:41
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 19:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-05RE1 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		10	5.00	5.00	272.1	mg/L	B, D



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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NGW220-021423
23B0311-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 13:38
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 16:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-06 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	3.64	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	15.6	ug/L	
Trichloroethene	79-01-6	1	0.20	1.51	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.1	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.1	%	



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NGW220-021423
23B0311-06RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 13:38
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 20:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-06RE1 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		10	5.00	5.00	775.6	mg/L	B, D



The Boeing Company [North Boeing Field]
PO Box 3703 MS 2R-96
Seattle WA, 98124

Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

NGW208-021423
23B0311-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 02/14/2023 13:39

Instrument: NT2 Analyst: LH

Analyzed: 02/15/2023 17:15

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 23B0311-07 A

Preparation Batch: BLB0376

Sample Size: 10 mL

Prepared: 02/15/2023

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	0.84	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	4.81	ug/L	
Trichloroethene	79-01-6	1	0.20	0.33	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	96.8	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.5	%	



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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NGW208-021423
23B0311-07 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 13:39
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 10:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-07 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	5.15	mg/L	B



The Boeing Company [North Boeing Field] PO Box 3703 MS 2R-96 Seattle WA, 98124	Project: NBF Regional GW Program Project Number: 025217.003.099.079 Project Manager: Jennifer Parsons	Reported: 15-Mar-2023 12:09
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NGW203-021423
23B0311-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 14:19
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 17:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-08 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	8.55	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	22.3	ug/L	
Trichloroethene	79-01-6	1	0.20	1.26	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.7</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



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NGW203-021423
23B0311-08 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 14:19
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 10:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-08 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		32.75	16.38	16.38	1171	mg/L	B, D



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Project: NBF Regional GW Program
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NGW207-021423
23B0311-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 02/14/2023 14:44

Instrument: NT2 Analyst: LH

Analyzed: 02/15/2023 17:55

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 23B0311-09 A

Preparation Batch: BLB0376

Sample Size: 10 mL

Prepared: 02/15/2023

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.22	ug/L	
Trichloroethene	79-01-6	1	0.20	0.83	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.5</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>99.1</i>	<i>%</i>	



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NGW207-021423
23B0311-09 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 14:44
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 11:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-09 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		11	5.50	5.50	990.7	mg/L	B, D



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NGW201-021423
23B0311-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 14:55
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 18:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-10 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	15.4	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	2.48	ug/L	
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	



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NGW201-021423
23B0311-10 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 14:55
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 12:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-10 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		5	2.50	2.50	340.6	mg/L	B, D



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NGW206-021423
23B0311-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 15:34
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 18:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-11 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	2.07	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.49	ug/L	
Trichloroethene	79-01-6	1	0.20	0.21	ug/L	
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.4</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>95.9</i>	<i>%</i>	



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NGW206-021423
23B0311-11 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 15:34
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 12:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-11 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		15	7.50	7.50	137.1	mg/L	B, D



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NGW308-021423
23B0311-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 15:59
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 18:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-12 A
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	0.80	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.4	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	102	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.3	%	



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NGW309-021423
23B0311-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 02/14/2023 16:58

Instrument: NT2 Analyst: LH

Analyzed: 02/15/2023 19:17

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 23B0311-13 A

Preparation Batch: BLB0376

Sample Size: 10 mL

Prepared: 02/15/2023

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	0.23	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>96.6</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>99.3</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>99.5</i>	<i>%</i>	



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NGW309-021423
23B0311-13 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 16:58
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 13:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-13 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	13.82	mg/L	B



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NGW307-021423
23B0311-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 17:01
Instrument: NT2 Analyst: LH Analyzed: 02/16/2023 09:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-14 B
Preparation Batch: BLB0408 Sample Size: 10 mL
Prepared: 02/16/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	0.61	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.32	ug/L	
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	0.22	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	100	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	



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NGW307-021423
23B0311-14 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 17:01
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 13:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-14 D
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		20	10.00	10.00	164.4	mg/L	B, D



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Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
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NGW301-021423
23B0311-15 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 02/14/2023 17:41

Instrument: NT2 Analyst: LH

Analyzed: 02/15/2023 20:01

Analysis by: Analytical Resources, LLC

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 23B0311-15 G

Preparation Batch: BLB0376

Sample Size: 10 mL

Prepared: 02/15/2023

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.40	ug/L	
Trichloroethene	79-01-6	1	0.20	0.46	ug/L	
Tetrachloroethene	127-18-4	1	0.20	3.11	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.1</i>	<i>%</i>	
<i>Surrogate: Toluene-d8</i>			<i>80-120 %</i>	<i>99.9</i>	<i>%</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>			<i>80-120 %</i>	<i>101</i>	<i>%</i>	



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NGW301-021423
23B0311-15 (Water)

Wet Chemistry

Method: SM 5310 B-00 Sampled: 02/14/2023 17:41
Instrument: TOC-LCSH Analyst: RMS Analyzed: 03/02/2023 13:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem Extract ID: 23B0311-15 L
Preparation Batch: BLC0006 Sample Size: 20 mL
Prepared: 03/01/2023 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.29	mg/L	B



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Trip Blank-021423
23B0311-16 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/14/2023 09:48
Instrument: NT2 Analyst: LH Analyzed: 02/15/2023 20:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 23B0311-16 D
Preparation Batch: BLB0376 Sample Size: 10 mL
Prepared: 02/15/2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	91.8	%	



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Project: NBF Regional GW Program
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Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLB0376 - EPA 8260D

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLB0376-BLK1)										
					Prepared: 15-Feb-2023		Analyzed: 15-Feb-2023 10:39			
Vinyl Chloride	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.31		ug/L	5.00		106	80-129			
<i>Surrogate: Toluene-d8</i>	4.89		ug/L	5.00		97.9	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.64		ug/L	5.00		92.8	80-120			
LCS (BLB0376-BS1)										
					Prepared: 15-Feb-2023		Analyzed: 15-Feb-2023 09:17			
Vinyl Chloride	10.4	0.20	ug/L	10.0		104	66-133			
cis-1,2-Dichloroethene	10.7	0.20	ug/L	10.0		107	80-121			
Trichloroethene	10.8	0.20	ug/L	10.0		108	80-120			
Tetrachloroethene	10.3	0.20	ug/L	10.0		103	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.99		ug/L	5.00		99.9	80-129			
<i>Surrogate: Toluene-d8</i>	4.93		ug/L	5.00		98.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.87		ug/L	5.00		97.3	80-120			
LCS Dup (BLB0376-BS1)										
					Prepared: 15-Feb-2023		Analyzed: 15-Feb-2023 09:38			
Vinyl Chloride	10.9	0.20	ug/L	10.0		109	66-133	4.55	30	
cis-1,2-Dichloroethene	10.8	0.20	ug/L	10.0		108	80-121	1.08	30	
Trichloroethene	10.5	0.20	ug/L	10.0		105	80-120	2.35	30	
Tetrachloroethene	10.6	0.20	ug/L	10.0		106	80-120	2.71	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.16		ug/L	5.00		103	80-129			
<i>Surrogate: Toluene-d8</i>	4.99		ug/L	5.00		99.9	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.96		ug/L	5.00		99.2	80-120			
Matrix Spike (BLB0376-MS1)										
		Source: 23B0311-15			Prepared: 15-Feb-2023		Analyzed: 15-Feb-2023 21:04			
Vinyl Chloride	9.93	0.20	ug/L	10.0	ND	99.3	66-133			
cis-1,2-Dichloroethene	10.5	0.20	ug/L	10.0	0.40	101	80-121			
Trichloroethene	10.6	0.20	ug/L	10.0	0.46	101	80-120			
Tetrachloroethene	12.6	0.20	ug/L	10.0	3.11	95.0	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.90		ug/L	5.00	4.85	97.9	80-129			
<i>Surrogate: Toluene-d8</i>	4.97		ug/L	5.00	5.00	99.4	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.84		ug/L	5.00	5.04	96.8	80-120			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLB0376 - EPA 8260D

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BLB0376-MS1)		Source: 23B0311-15		Prepared: 15-Feb-2023		Analyzed: 15-Feb-2023 21:04				

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BLB0376-MSD1)		Source: 23B0311-15		Prepared: 15-Feb-2023		Analyzed: 15-Feb-2023 21:24				
Vinyl Chloride	10.2	0.20	ug/L	10.0	ND	102	66-133	2.40	30	
cis-1,2-Dichloroethene	10.8	0.20	ug/L	10.0	0.40	104	80-121	2.38	30	
Trichloroethene	10.6	0.20	ug/L	10.0	0.46	101	80-120	0.21	30	
Tetrachloroethene	12.6	0.20	ug/L	10.0	3.11	94.7	80-120	0.26	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.03		ug/L	5.00	4.85	101	80-129			
<i>Surrogate: Toluene-d8</i>	5.05		ug/L	5.00	5.00	101	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.98		ug/L	5.00	5.04	99.7	80-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



The Boeing Company [North Boeing Field]
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Project: NBF Regional GW Program
Project Number: 025217.003.099.079
Project Manager: Jennifer Parsons

Reported:
15-Mar-2023 12:09

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLB0408 - EPA 8260D

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLB0408-BLK1)										
					Prepared: 16-Feb-2023 Analyzed: 16-Feb-2023 08:48					
Vinyl Chloride	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.11		ug/L	5.00		102	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.8	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.70		ug/L	5.00		93.9	80-120			
LCS (BLB0408-BS1)										
					Prepared: 16-Feb-2023 Analyzed: 16-Feb-2023 07:05					
Vinyl Chloride	10.7	0.20	ug/L	10.0		107	66-133			
cis-1,2-Dichloroethene	10.8	0.20	ug/L	10.0		108	80-121			
Trichloroethene	10.8	0.20	ug/L	10.0		108	80-120			
Tetrachloroethene	10.6	0.20	ug/L	10.0		106	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.01		ug/L	5.00		100	80-129			
<i>Surrogate: Toluene-d8</i>	5.00		ug/L	5.00		100	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.93		ug/L	5.00		98.7	80-120			
LCS Dup (BLB0408-BSD1)										
					Prepared: 16-Feb-2023 Analyzed: 16-Feb-2023 07:47					
Vinyl Chloride	10.8	0.20	ug/L	10.0		108	66-133	1.06	30	
cis-1,2-Dichloroethene	11.1	0.20	ug/L	10.0		111	80-121	2.55	30	
Trichloroethene	10.9	0.20	ug/L	10.0		109	80-120	0.87	30	
Tetrachloroethene	10.6	0.20	ug/L	10.0		106	80-120	0.12	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.78		ug/L	5.00		95.6	80-129			
<i>Surrogate: Toluene-d8</i>	5.08		ug/L	5.00		102	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.95		ug/L	5.00		98.9	80-120			



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15-Mar-2023 12:09

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLC0006 - SM 5310 B-00

Instrument: TOC-LCSH Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLC0006-BLK1)						Prepared: 01-Mar-2023 Analyzed: 02-Mar-2023 05:20					
Total Organic Carbon	0.50	0.50	0.50	mg/L							
LCS (BLC0006-BS1)						Prepared: 01-Mar-2023 Analyzed: 02-Mar-2023 06:30					
Total Organic Carbon	20.73	0.50	0.50	mg/L	20.00		104	90-110			B
Duplicate (BLC0006-DUP1)						Source: 23B0311-15 Prepared: 01-Mar-2023 Analyzed: 02-Mar-2023 14:23					
Total Organic Carbon	3.09	0.50	0.50	mg/L		3.29			6.15	20	B
Duplicate (BLC0006-DUP2)						Source: 23B0311-15 Prepared: 01-Mar-2023 Analyzed: 03-Mar-2023 21:51					
Total Organic Carbon	3.05	0.50	0.50	mg/L		3.29			7.29	20	B
Matrix Spike (BLC0006-MS1)						Source: 23B0311-15 Prepared: 01-Mar-2023 Analyzed: 02-Mar-2023 14:43					
Total Organic Carbon	23.52	0.50	0.50	mg/L	20.00	3.29	101	75-125			B
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BLC0006-MS2)						Source: 23B0311-15 Prepared: 01-Mar-2023 Analyzed: 03-Mar-2023 22:09					
Total Organic Carbon	23.20	0.50	0.50	mg/L	20.00	3.29	99.6	75-125			B
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Certified Analyses included in this Report

Analyte	Certifications
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE



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2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE



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SM 5310 B-00 in Water

Total Organic Carbon WA-DW,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023



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Notes and Definitions

- * Flagged value is not within established control limits.
- B This analyte was detected in the method blank.
- D The reported value is from a dilution
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.